



A method of estimating the form of coarse particulates

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Titre A method of estimating the form of coarse particulates

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A small but important body of geomechanics literature now exists to show qualitatively that whether a specimen is composed of particles that are bulky or platy can have a significant effect on its behaviour during compression and shear. This particle shape characteristic has been termed 'form', which has sometimes been estimated on the basis of 'sphericity', a measure of how close a given particle form comes to that of a sphere. To assess the effects of form it will be necessary to develop and evaluate simple, practical, and robust three-dimensional measures of this aspect of particle shape. This paper reviews experimental evidence on the importance of particle form, and examines previous definitions of it. It then considers potential methods of obtaining data to define the three-dimensional form of coarse particles, and proposes a practical method (based on a volumetric equivalent scalene ellipsoid) by which this can be done. The proposed method is applied to specimens with different particle shapes, and the results are assessed by comparison with other possible measures of form, and against the results obtained from orthogonal measurements made using static imaging.

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